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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,995	12/11/2003	Benjamin Peter Jeffryes	57.0441 US NP	8282

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Intellectual Property Law Department  
Schlumberger-Doll Research  
36 Old Quarry Road  
Ridgefield, CT 06877

EXAMINER
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COLLINS, GIOVANNA M

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/732,995

Applicant(s)

JEFFRYES, BENJAMIN PETER

Examiner

Giovanna M. Collins

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 20-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3,7-12 are under 35 U.S.C. 103(a) as being unpatentable over Wisler 5,812,068.

Referring to claims 1-3 and 8, Wisler discloses a system for making measurements in a wellbore comprising a first sensor adapted to measure a first downhole parameter; and a second downhole sensor adapted to measure a second downhole parameter (col. 6, line 25); a downhole processor (col. 6, line 25)) in communication with the sensors (col.14, lines 26-54) and a transmitter (col. 6, lines 25-26, telemetry system) located downhole in communication with the processor. Wisler does not specifically disclose the processor and transmitter are configured to calculate statistical relationships. However, the examiner takes official notice that any statistical program can be downloaded to the processor disclosed by Wisler such that the processor could be configured to calculate statistical relationships such as covariance and standard deviation. Therefore it would be obvious to one of ordinary skill in the art to modify the system disclosed by Wisler to have the processor configured to calculate statistical relationships because downloading statistical programs is well known in the art.

Referring to claim 7, Wisler discloses the first parameter is annular pressure and the second parameter is downhole flowrate of drilling mud (col. 11, lines 21-25).

Referring to claim 9, Wisler discloses a receiver (see fig. 1a, 30) and a surface processor (32).

Referring to claim 10, Wisler discloses the processor is programmed to compare data acquired for other wells (col. 7, lines 26-41).

Referring to claim 11, Wisler discloses the surface processor is programmed to compare data acquired on surface equipment (col. 14, lines 4-15)

Referring to claim 12, Wisler discloses the processor (32) is configured to display data.

2. Claims 4-5, 13 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wisler '068 in view of European Application 0551134 to Jogi et al.

Referring to claim 4, Wisler does not disclose the downhole parameters are torque and weight on bit. Jogi teaches using sensors to measure torque and weight on bit (page 3, lines 55-57). Jogi further teaches torque and weight on bit are important indicators of drilling issues near the bit (page 4, lines 37-43 and page 15, line 6). As it would be advantageous to be able to identify drilling issues near the bit in order to optimize the drilling response, it would be obvious to one of ordinary skill in the art at the time of the invention to further modify the system disclosed by Wisler to have sensors that measure torque and weight on bit in view of the teachings of Jogi.

Referring to claim 5, Wisler discloses the first parameter is pressure (col. 11, lines 21-25) but does not disclose the second diamond is weight on bit. Jogi teaches using sensors to measure weight on bit (page 3, lines 55-57). Jogi further teaches weight on bit is an important indicator of drilling issues near the bit (page 4, lines 37-43 and page 15, line 6). As it would be advantageous to be able to identify drilling issues near the bit in order to optimize the drilling response, it would be obvious to one of ordinary skill in the art at the time of the invention to further modify the system disclosed by Wisler to have sensors that measure weight on bit in view of the teachings of Jogi.

Referring to claim 13, Wisler, as modified, does not disclose the statistical relationship is used to make an estimation of bit wear. Jogi teaches making an estimation of bit wear helps to determine when a bit should be replaced (page 13, lines 21-40). As it would be advantageous to have an early indication of when to replace a bit, it would be obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by Wisler to use the calculated statistical relationships to make an estimation of bit wear in view of the teachings of Jogi.

Referring to claim 15, Wisler does not disclose calculating a frictional correction. Jogi teaches calculating a frictional correction (page 5, lines 30-31) and using the frictional correction to estimate torque, weight on bit and rate of penetration (pages 5-6). Jogi further teaches torque and weight on bit are important indicators of drilling issues near the bit (page 4, lines 37-43 and page 15, line 6). As it would be advantageous to be able to identify drilling issues near the bit in order to optimize the drilling response, it would be obvious to one of ordinary skill in the art at the time of the invention to modify

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the system disclosed by Wisler to have sensors that measure torque and weight on bit in view of the teachings of Jogi.

Referring to claims 16-17, Jogi teaches using a frictional correction to estimate downhole torque and weight on bit and estimate a relationship between weight on bit and rate (pages 5-6).

Referring to claim 18, Wisler does not disclose getting the rate of penetration. Jogi teaches rate of penetration affects the operation of the bit (page 2, lines 46-55). As it would be advantageous to get as much data on the parameters that affect the bit and thus the drilling response, it would be obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by Wisler get data on the rate of penetration in view of the teachings of Jogi.

3. Claims 6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wisler '068 in view of More 4,216,536

Referring to claims 6 and 19, Wisler does not disclose the downhole parameters are tool face and weight on bit. More teaches using sensors to measure tool face and weight on bit (col. 4, lines 22-37) and a processor (100) that is capable of estimating a tool face correction. These parameters affect the operation of the drill bit and thus the drilling response. As it would be advantageous to be able to identify drilling parameters that effect the bit in order to optimize the drilling response, it would be obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by

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Wisler to have sensors that measure tool face and weight on bit in view of the teachings of More.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wisler '068 in view of Jogi '134 and Pinckard 6,382,331

Referring to claim 14, Wisler does not disclose the downhole parameters are torque and weight on bit and the surface operating parameter is hookload. Jogi teaches using sensors to measure torque and weight on bit (page 3, lines 55-57). Jogi teaches torque and weight on bit are important indicators of drilling issues near the bit (page 4, lines 37-43 and page 15, line 6). Pinckard teaches hook load is used to determine optimum rate of penetration (col. 1, line 62-col. 1, line 19). As it would be advantageous to be able to identify drilling issues near the bit in order to optimize the drilling response and to know the optimal rate of penetration, it would be obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by Wisler to have sensors that measure torque and weight on bit and to know the hook load in view of the teachings of Jogi and Pinckard.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Giovanna M. Collins whose telephone number is 571-272-7027. The examiner can normally be reached on 6:30-3 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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